

ABSTRACT

BACKGROUND :

Sepsis is a global disease burden and it accounts for more than half of all the ICU admissions. The mortality of sepsis and septic shock patients is quite high which ranges between 20 to 40%. The research into target directed therapy of septic shock lead to the discovery of upregulation of hypothalamo-pituitary-adrenal axis in septic shock and also the pathogenesis of adrenal insufficiency in septic shock patients. There were very limited data in the Indian literature with regards to the incidence of adrenal insufficiency in septic shock which prompted us to take up this study.

OBJECTIVES :

- To assess the incidence of adrenal insufficiency in patients with septic shock
- To assess the correlation between serum cortisol levels and mortality

METHODS :

A study population was selected based on patients admitted to the IMCU with septic shock who meet the criteria for septic shock according to the SEPSIS-3 (2016). 50 patients were studied. It was an observational and prospective study. They were started on empirical steroid therapy and blood drawn and sent for Serum cortisol levels. Once the results came, if they are found to be adrenal insufficient steroids continued for 7 days and then tapered and stopped. If they are normal, steroids are discontinued. The other parameters that were analyzed include age and sex distribution, comorbidities, source of sepsis, organisms causing sepsis, vasopressor requirement, mechanical ventilation requirement, CRP positivity and Outcome of the patients.

RESULTS :

Out of 50 patients, 38%(n=22) were found to have adrenal insufficiency. The mortality rate in the first week of sepsis was 59% in the adrenal insufficiency group and 40.9% in the sufficient group. There was statistically significant high mortality in the both very low and very high cortisol groups. The mortality rate was 59% in patients with cortisol levels <15mcg/dL and 83% with cortisol levels >40mcg/dL, which was attributed to the tissue resistance to corticosteroids in sepsis. There were

significant increase in vasopressor requirement and the need for mechanical ventilation in the adrenal insufficiency group.

CONCLUSIONS :

There was a high percentage of absolute adrenal insufficiency(38%) in our study population. The rate of relative adrenal insufficiency due to defects in HPA axis could be still high. We were not able to assess the relative adrenal insufficiency as our access to ACTH injections were very limited. The both ends of the spectrum values of serum cortisol were associated with significantly high mortality. Thus it makes it essential to measure cortisol levels in septic shock before giving them steroid replacements.

KEYWORDS :

- Adrenal Insufficiency
- Septic chock
- Hypothalamo-pituitary-adrenal axis
- Serum Cortisol